MF-200A
(Rev. April 1956)

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DATE	INITIALS	CODE

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
EXPLORATION PROJECT CONTRACT
(Short Form)

DMEA No.	*Commodity*	*Contract No.*	~~County~~	~~State~~
4568	Molybdenum	*Idm-E* 1094	Taos	New Mexico

It is agreed 31 MAY 1957, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and MOLYBDENUM CORPORATION OF AMERICA, a Delaware Corporation.

678929

whose mailing address is ~~500 Fifth Avenue~~ 375 Park Avenue, New York ~~18~~ 22, New York, hereinafter called the "Operator," as follows:

ARTICLE 1. *Authority and project.*—(a) This contract is entered into under the authority of the Defense Production Act of 1950, as amended. It consists of this form (MF-200A), the attached Annex I (land description), Exhibit A (work and costs), and the maps and documents listed therein. The project work is a search for indicated or undeveloped deposits of the commodity designated above. The Operator shall begin the work on or before June 15, 1957, and, subject to the provisions of Article 7 and Exhibit A, shall complete the work within 30 months from the date of the contract.

(b) The description of the work and the fixed cost for each unit of work to be performed (per foot of drilling, per foot of drifting, per hour of operations, etc.) are hereby agreed upon as specified in Exhibit A. The estimated total cost of the project work is $510,500.00. The Government will contribute 50 percent of the fixed unit cost of the work performed, not exceeding $255,250.00, in accordance with the provisions of Articles 4 and 5.

(c) The Operator shall not transfer or assign this contract or any right or obligation thereunder without the written consent of the Government.

ARTICLE 2. *Operator's property rights.*—(a) The Operator represents and undertakes that Annex I correctly describes the land which is the subject of this contract and the nature of the Operator's rights of property and possession therein (whether as owner, lessee, or otherwise), and that such right, title, or interest is subject only to the following claims, liens, or encumbrances: None

(b) The Subordination Agreement of the holder of any claim, lien, or encumbrance listed above and (if the Operator does not hold the legal title) the Consent to Lien of any holder of the legal title of the land (lessor, seller, optionor, etc.) are attached, as follows: None

(c) The Operator shall preserve and maintain his right, title, and interest in the land and his right to the possession thereof for the purposes of this contract, and shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of this contract. The Operator shall neither transfer, convey, nor surrender the land nor any right, title, or interest therein, nor permit nor suffer any claim, lien, or encumbrance thereon, without expressly referring to and providing

in the instrument of conveyance, lien, or encumbrance for the preservation of the Government's right to a percentage royalty on production and lien for the payment thereof. Two copies of such instrument shall be furnished to the Government. If the Government's rights to royalty as provided in Article 6 have been terminated, the provisions of this paragraph (c) shall become inapplicable.

ARTICLE 3. *Performance of the work.*—(a) Operator's responsibility.—The work shall be performed diligently, efficiently, expertly, in a workmanlike manner, and in accordance with good mining standards and State regulations governing health, safety, and liability insurance covering employment. The Operator shall provide suitable and adequate equipment, facilities, materials, supplies, and labor to complete the work, as specified in Article 1 (a).

(b) *Government may inspect.*—The Operator shall consult with and inform the Government on all phases of the work as it progresses. The Government may enter at all reasonable times to inspect the work under the contract, and also after certification of discovery or development, to inspect production operations and underground workings. The Operator shall provide the Government with all reasonable means of access for such inspections.

ARTICLE 4. *Contribution by the Government.*—The Government will make its contribution on the basis of the monthly vouchers referred to in Article 5 (b); but all payments by the Government are provisional only, subject to audit, and until the account between the Operator and the Government is finally audited and settled and the Operator's final report has been rendered, the Government may withhold such sums as it sees fit but not in excess of 10 percent of the estimated total cost of the work. To the extent that excesses over fixed unit costs or any excess over the estimated total cost may be necessary for the performance of the work, the Operator shall incur and pay such excesses for his own account without contribution by the Government. The Government will not contribute to the cost of any work performed prior to the date of this contract. The Government may make payments for the account of the Operator directly to independent contractors and suppliers rather than to the Operator.

ARTICLE 5. *Reports, accounts, audits.*—(a) Operator's records.—The Operator shall keep suitable records and accounts of the units of work performed and of any production in which the Government may have an interest; and shall preserve those with respect to work performed for at least three years after final payment by the Government, and those with respect to production for at least three years after any obligation to pay royalties to the Government has terminated. The Government may inspect and audit said records and accounts at any time, either by itself or by a certified public accountant. The Comptroller General of the United States or his representative, until the expiration of said three-year periods, shall have access to and the right to examine all pertinent books, documents, papers, and records of the Operator.

(b) *Progress reports and vouchers.*—The Operator shall provide the Government with five copies of monthly progress reports in three sections as follows: (1) Operator's Monthly Report and Voucher showing a detailed statement of units of work performed during the reporting period; (2) Operator's Unit Cost and Progress Report showing the various types of work performed during the reporting period and the fixed unit costs incurred for each type of work; and (3) a Narrative Report of the work performed during the reporting period including adequate engineering-geological maps or sketches, drill hole logs and locations, and assay reports on samples taken concurrently with advance in mineralized ground. (Forms for reporting under (1) and (2) above will be provided by the Government.)

(c) *Final report.*—Upon completion of the work or termination of the Government's obligation to contribute to costs, the Operator shall furnish the Government with five copies of a final report (in addition to the final progress report and voucher). This final report shall include a geological and engineering evaluation of the results of the work performed under the contract with an estimate of the ore reserves resulting from such work, complete assay data, adequate geological and engineering maps or sketches, and a summary of the work performed and the unit costs thereof.

(d) *Report of sales.*—The Operator shall provide the Government with suitable accounting and documentary evidence covering all production to which the Government's percentage royalty relates, such as copies of smelter or concentrator settlement sheets, and certified accounts of production and sale or other disposition of production.

(e) *Compliance with requirements.*—If in the opinion of the Government any of the Operator's reports, records, or accounts are insufficient or incomplete, or if the Operator fails to make them, the Government may procure the making or completion of such with suitable attachments as an expense of the work to which the Operator shall contribute. The Government may withhold approval and payment of any vouchers relating to insufficient or incomplete reports, records, or accounts.

ARTICLE 6. *Repayment by Operator.*—(a) *Certification.*—If the Government considers that a discovery or development from which production may be made has resulted from the work, the Government, at any time not later than six months after the Operator has rendered a sufficient final report (see Article 5), may so certify in writing to the Operator. Such certification shall describe broadly or indicate the nature of the discovery or development. **See Article 10 and Annex II.**

(b) *Royalty on production.*—The Operator, as principal if the Operator is the producer or as surety if the Operator is not the producer (for example, if the Operator either transfers or fails to retain his interest in the land), shall pay to the Government a royalty on all minerals mined or produced from the land, as follows: (1) regardless of any certification of discovery or development, from the date of the contract until the lapse of the time within which the Government may make such certification or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first; or (2) if the Government makes a certification of discovery or development, for a period of ten years from the date of the contract or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first. **See Article 10 and Annex II.**

(c) *Basis for computation.*—The Government's royalty shall be a percentage of the gross proceeds (including any bonuses, premiums, allowances, or other benefits) from the production sold, in the form sold (ore, concentrates, metal, or equivalent), at the point of delivery (the f. o. b. point); *except,* that charges of *the buyer* arising in the regular course of business, and shown as deductions on the buyer's settlement sheets, on account of the cost of treatment processes performed by *the buyer,* sampling and assaying to determine the value of the production sold, and freight paid by *the buyer* to a carrier (not the Operator), shall be allowed as deductions in arriving at the "gross proceeds" as that term is used herein. Any costs of treatment processes, sampling, assaying, or transportation performed or paid by the Operator or by anyone other than the buyer are not deductible in arriving at the "gross proceeds" as that term is here used. The term "treatment processes," as here used, means those processes (such as milling, concentrating, smelting, refining, or equivalent, but excluding fabricating or manufacturing) applied to the crude ore or other production after it is extracted from the ground to put it into a commercially marketable form.

(d) *Unsold production.*—If any production (ore, concentrates, metal, or equivalent) after the lapse of six months from the date the ore was extracted from the ground remains neither sold nor used by the Operator in integrated manufacturing or fabricating operations (for instance, if it is stockpiled), the Government, at its option, as long as it so remains, may require the computation and payment of its royalty on the value of such production in the form (ore, concentrates, metal, or equivalent) it is in when the Government elects to require computation and payment. If any production is used by the Operator in integrated manufacturing or fabricating operations before the Government makes its election, the Government's royalty on such production shall be computed on the value thereof in the form in which and at the time it is so used. "Value" as here used means what is or would be gross income from mining operations for percentage depletion purposes in Federal income tax determination, or the market value, whichever is greater.

(e) *Percentages of royalty.*—The percentages of the Government's royalty shall be as follows:

One and one-half (1½) percent of amounts ("gross proceeds" or "value") not in excess of eight dollars ($8.00) per ton of production in the form in which sold, held, or used, plus one-half (½) percent for each additional full fifty cents ($0.50) by which such amounts exceed eight dollars ($8.00) per ton, but not in excess of five (5) percent of such amounts.

(For instance: the royalty on an amount of five dollars ($5.00) per ton would be one and one-half (1½) percent; on an amount of ten dollars ($10.00) per ton, three and one-half (3½) percent.)

(f) *Time for computation and payment.*—The Government's royalty shall be computed and paid currently upon each lot sold, held, or used in integrated operations, as the case may be, as above provided in this Article.

(g) *Lien for payment.*—To secure the payment of its percentage royalty, there is hereby granted to the Government a lien upon the land or the Operator's interest in the land and upon any production of minerals therefrom until the royalty claim is extinguished by lapse of time or is fully paid.

(h) *Notice to purchasers.*—The Operator shall give notice of the Government's claim for royalty to any purchaser of the production, and shall authorize and direct such purchaser to pay the royalty directly to the Government and to furnish the Government with copies of the settlement sheets. If the records of any production and sales or other disposition of production, whether the production is by the Operator or by others, are not made available to the Government, the amount of the royalty may be estimated by the Administrator, Defense Minerals Exploration Administration, or his successor, and his estimate thereof shall be final and binding upon the Operator.

(i) *No obligation to produce.*—Nothing in this contract is to be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any production operations.

(j) *Government not obligated to buy.*—Nothing in this contract shall be construed as imposing any obligation on the Government to purchase any minerals mined or produced from the land.

ARTICLE 7. *Termination of the Government's obligations.*—(a) If in the opinion of the Government operations at any time have failed to achieve anticipated results that indicate the probability of making a worthwhile discovery and in the opinion of the Government further operations are not justified, the Government may give the Operator written notice thereof, and thereupon the Government shall be free of all obligation to pay on account of units of work not then performed, and the Operator shall be free of all further obligation to prosecute the work other than such as may be necessary and incidental to winding up, reporting, and accounting.

(b) If in the opinion of the Government the Operator is in any manner in default under the terms of the contract, the Government may give the Operator written notice of such default with a specification of reasonable time within which the default must be cured; and if the Operator fails to cure such default as required, thereupon the Government shall be relieved of all obligation to pay on account of units of work not performed when the notice was given, and the Operator shall be free of all obligation to prosecute the work other than such as may be necessary and incidental to winding up, reporting, and accounting. The Government may also avail itself of any other remedy the law may provide for breach of contract, including the right to rescind the contract and to demand repayment of all moneys contributed by the Government under the contract.

(c) The giving of any notice by the Government under the provisions of this Article 7 shall not affect the Government's rights as provided for in the contract with respect to a percentage royalty, and liens to secure the payment thereof, and such rights shall be fully preserved.

ARTICLE 8. *Notices to be given by the Government* may be delivered to the Operator or may be sent by registered mail addressed to the Operator at the mailing address stated in this contract. If mailed, notices are deemed to have been delivered five days after the date of mailing.

ARTICLE 9. *Officials not to benefit.*—No member of or delegate to Congress or resident commissioner shall be admitted to any share or part of this contract or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

ARTICLE 10. *Changes and added provisions.*—

See Annex II

Executed in sextuplicate the day and year first above written.

Butler
Sawyer
"Appd. Sol. Off."
Murphy
Ellis
Chambers
Selfridge

THE UNITED STATES OF AMERICA

MOLYBDENUM CORPORATION OF AMERICA
(Operator)

By Marx Hirsch

Title President

By [signature]
Administrator, Defense Minerals
Exploration Administration

I, James S. Crawford, certify that I am the secretary of the corporation named as Operator herein; that Marx Hirsch, who signed this contract on behalf of the Operator, was then President of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

James S. Crawford

[CORPORATE SEAL]

U. S. GOVERNMENT PRINTING OFFICE: 1956—O-383089

EXPLORATION PROJECT CONTRACT
MOLYBDENUM CORPORATION OF AMERICA
DOCKET NO. DMEA-4568

ANNEX I

The land referred to in Article 2 of the Contract consists of twenty-one (21) contiguous lode mining claims, 2 patented and 19 unpatented. Notices of the locations of the claims are recorded in the County Clerk's Office, Taos, New Mexico, as follows:

Name of Claim	Section	Township	Range	Book	Page
Rhyolite No. 2	36	29 N	13 E	F-15	37-38
Rhyolite No. 3	35, 36	29 N	13 E	F-15	38
Rhyolite No. 4	35, 36	29 N	13 E	F-28	232
	2	28 N	13 E		
Rhyolite No. 5	35	29 N	13 E	F-28	233
	2	28 N	13 E		
Rhyolite No. 6	35	29 N	13 E	F-28	234
Rhyolite No. 7	35	29 N	13 E	F-28	250
Rhyolite No. 8	35	29 N	13 E	F-28	251
	2	28 N	13 E		
Rhyolite No. 9	35	29 N	13 E	F-28	252
	2	28 N	13 E		
Rhyolite No. 10	35	29 N	13 E	F-28	253
	2	28 N	13 E		
Aplite No. 1	2	28 N	13 E	5-33	6
Aplite No. 2	2	28 N	13 E	5-33	7
Aplite No. 3	2	28 N	13 E	5-33	8
Aplite No. 4	2	28 N	13 E	5-33	9
Aplite No. 5	2	28 N	13 E	5-33	10
Aplite No. 6	2	28 N	13 E	5-33	11
Aplite No. 7	2	28 N	13 E	5-33	12
Aplite No. 8	2	28 N	13 E	5-33	13
Aplite No. 9	2	28 N	13 E	5-33	14
Aplite No. 10	2	28 N	13 E	5-33	15
Sargent No. 6	35, 36	29 N	13 E	Patent No. 1909	
Sargent No. 7	35, 36	29 N	13 E	Patent No. 1909	

The approximate locations of the above claims with reference to section, Township, and Range lines are shown on the map entitled "Figure 5. Claim Map, Moly or Questa Mine, Molybdenum Corporation of America, Taos County, New Mexico," attached hereto and made part hereof.

The Operator is the owner of the mining claims.

EXPLORATION PROJECT CONTRACT
MOLYBDENUM CORPORATION OF AMERICA
DOCKET NO. DMEA-4568

EXHIBIT A

Description of the Work

General Provisions

The object of this project is to explore for deposits of molybdenum ore by means of diamond drilling, drifting, and crosscutting.

The Government will not contribute to the cost of a diamond drill hole that bottoms less than AX size, or to one that is not completed, excepting individual holes where the Government, in writing, waives these provisions because of unforeseen drilling conditions. Drill holes shall be cemented and drilled out or reamed and cased as necessary.

All drifts and crosscuts shall be timbered as necessary, and shall be not less than 5 feet by 7 feet in cross section clear of the timber. Drill stations shall be of sufficient size to permit breaking the drill rods in at least 10-foot sections.

Mineralized core shall be split over 10-foot sections. In mineralized areas the drifts and crosscuts shall be sampled by cutting a continuous 5-foot horizontal channel approximately three inches wide and one inch deep along one wall. In case it is impractical to cut a continuous 5-foot channel along the same wall, the other wall may be sampled opposite the interval where the channel cut was interrupted and the two samples combined.

The Operator shall have one-half of the mineralized core and one-half of each channel sample assayed for MoS_2. The remaining half of the core shall be stored with the non-mineralized portion of the core in boxes identified as to hole number, with markers placed in the core sections to show the depths represented; and the remaining half of each channel sample shall be stored in a suitable container properly identified as to the location where it was procured in the drifts or crosscuts. The stored core and channel samples shall be kept available for Government inspection and possible use, and the Operator may dispose of the stored portions of the core and channel samples only after prior Government approval.

4. At about coordinates E 40 and W 300, crosscuts shall be driven in both north and south directions to explore for possible contacts of the granite and overlying "Green rock" or volcanics.

Favorable areas disclosed by work under Stage I and Stage II in this Area B shall be further explored by not more than 19,500 feet of diamond drilling.

Under Stage II of this contract, not in excess of 19,500 feet of diamond drilling with 250 feet of drifts, crosscuts, and/or raises for drill stations; 6,160 feet of drifting and crosscutting (exclusive of drill stations); 6,160 feet of timbering, shall be performed; nor more than 3,177 samples analyzed for their MoS_2 content.

Fixed Unit Costs

Stage I - Areas A and B

Diamond drilling, 9,000 feet @ $5.00/ft.	$ 45,000.00	
Reaming and casing, or cementing and drilling out drill holes, 500 feet @ $1.00/ft.	500.00	
Drill stations: 115 lineal feet of drifts, crosscuts, and/or raises @ $44.43/ft.	5,109.45	
Drifts and crosscuts, 1,000 feet @ $44.43/ft.	44,430.00	
Timbering drifts and crosscuts (as needed), 1,000 feet @ $2.70/ft.	2,700.00	
Chemical analyses for MoS_2 content of 1,100 samples @ $3.00/sample	3,300.00	
Estimated Total Cost Stage I		$101,039.45

Stage II - Area B + A

Diamond drilling, 19,500 feet @ $5.00/ft.	97,500.00	
Reaming and casing, or cementing and drilling out drill holes, 1,000 feet @ $1.00/ft.	1,000.00	

R-3

5400 - Landownership

February 7, 1972

Carson - Plans - Questa Ranger District Landownership Adjustment Plan (Molybdenum Corp. of America)

Forest Supervisor, Carson National Forest

By letter dated November 10, 1971, you transmitted an Environmental Analysis to this office proposing the classification of approximately 2,252 acres of National Forest land as base-in-exchange.

This analysis is hereby approved and you may revise your landownership adjustment plans accordingly.

We are returning the original and one approved copy of the Environmental Analysis.

T. W. Koskella
for WM. D. HURST
Regional Forester

Enc.

cc: Carson

RECEIVED
FEB 14 1972
QUESTA

RECEIVED
AUG 1 1972
CARSON N.F.

ENVIRONMENTAL ANALYSIS

LAND EXCHANGE

MOLYBDENUM CORPORATION OF AMERICA

QUESTA RANGER DISTRICT

CARSON NATIONAL FOREST

Prepared By: James B. Hennessy, Acting District Ranger — 11/5/71 Date

Recommended By: R. Kent Kennedy Acting FS — 11/8/71 Date

Approved By: T. W. KOSKELLA — 2-7-72 Date

United States
Department of Agriculture
Forest Service

2037
215
2252

An Environmental Analysis
of
A Land Exchange with Molybdenum Corporation of America

I. DESCRIPTION

Molybdenum Corporation of America, Questa Mine Division, Questa, New Mexico, has proposed a land exchange with the United States in which it offers 246.65 acres of land which it owns in Taos County for 2,258 acres of National Forest land adjacent to the mine in Red River Canyon.

The tracts of land which Molybdenum Corporation of America is offering the United States are located approximately 3 miles south of the village of Questa, New Mexico. These tracts are located on relatively broad, flat, bench lands at the foot of the Sangre de Cristo Mountains and are approximately 2 miles east of State Highway #3. The two parcels are approximately ½ mile apart.

Elevations on the tracts range from 8200 feet to 8600 feet above sea level. Vegetation is characterized by fairly large meadows interspersed with Gambel oak thickets and an occasional large pinyon or ponderosa pine. Ground cover consists primarily of blue grama and sagebrush. The fringes of the tracts are covered with ponderosa pine and Douglas fir, with some areas of large pinyon at the lower elevations. Soils are a moderately heavy clay loam quite susceptible to erosion. There is extensive evidence of severe gully and sheet erosion in the past. The vegetative cover has greatly improved and most erosion is stabilized at the present.

Access to the two offered parcels is poor. Roads were constructed to these tracts many years ago, but lack of maintenance has made these roads virtually impassable. Utilities are available adjacent to the southern-most parcel and are located approximately ½ mile west of the northern parcel.

There are no improvements or reservations. The highest and best use of the offered lands is for residential development. Within the past 4 years several large tracts have been developed in this immediate area for both single family and multiple family (hippie communes) use. These lands were originally homesteaded many years ago, but the past residents long ago had abandoned any farming.

The Government land selected by the Company consists of two parcels located approximately 2¼ miles east of the village of Questa. These tracts contain steep, mountainous terrain, and are located on the north side of the Red River and State Highway 38. One tract contains 215 acres

and the second tract contains 2,037 acres. To illustrate steepness of the terrain on one of the parcels, elevations rise from 7,900 feet at the highway to 9,700 feet within a distance of 3/4 mile. The slopes of this mountainous terrain are of rock ledges or of steep boulders and gravel. Vegetative cover is sparse to fair, depending upon aspect. Spruce, fir, and pine occur with a brush and grass understory. The northern aspects are more heavily timbered.

The selected land essentially constitutes a nonmineral area adjacent to the deep lying molybdenum ore body of the Questa Mine. The Company has located an extensive block of claims which includes the ridge between Cabresto Creek and Red River. This block extends from the town of Red River to Questa and south of Red River to Flag Mountain. The claims area includes the selected land. The selected area was covered by lode and millsite claims staked in recent years by the Molybdenum Corporation of America. Several lode and millsite claims have been patented or are currently being patented under the mining laws. The selected land lies adjacent to these patented claims, and could conceivably be patented as millsites under the mining laws. However, the claims could be patented only as they are needed for the mine dump and would involve many individual applications. The company would rather acquire all of the land in a single transaction to permit orderly planning and development of the dump. The selected lands have been extensively drilled by the proponent and found to be nonmineral in character.

Molybdenum Corporation of America has operated an underground mine for molybdenum in Red River Canyon since the 1920's. The mining was converted to a large open pit operation in the early 1960's and a new mill was formally opened in the spring of 1966. The open pit operation moves 60 to 70 thousand tons of ore and waste per 8-hour shift. Eight parts of this volume are waste which must be dumped outside the periphery of the pit operation. The extraction of ore and removal of overburden occur simultaneously. The selected lands will be the final area of disposal for a part of the nonmineral overburden. Eventually, after the mine is entirely developed, a portion of the overburden can be dumped in those portions of the pit from which the ore has been removed, but this will not be possible for many years.

II. ENVIRONMENTAL IMPACTS

The Molybdenum Corporation of America Questa Mine, is the largest single employer in northern New Mexico. Until recently the Company employed over 700 people and had an annual payroll in excess of $7,000,000. However, recent cutbacks in the steel industry have resulted in a layoff at the Questa Mine. Approximately one third of the personnel were laid off recently. Even with this reduction in manpower, the Company remains the largest single employer in this area and the approximately $4,500,000 payroll is significant to the economy of Taos County. The economic base of Taos County has improved tremendously since 1966 when the Questa Mine

was opened. Probably Questa is the community which has benefited most from the mine. The most noticeable changes are in the school system, the incorporation of the town of Questa, and improved living standards of local people. The school system has been improved by consolidation and construction of new physical plants. The Questa High School is one of few accredited high schools in northern New Mexico. The town of Questa has incorporated and has installed such community facilities as the community dump, a community water system, and is currently proposing a community sewage system. They now offer such community services as police and fire protection which are regarded as commonplace in other portions of this country, but are not always available in northern New Mexico.

Many of the old adobe homes in Questa have been modernized. The affluence which the mine has brought to this community can be observed in the way people dress, in the number of new vehicles which are found in the community and the general modernization of their homes. The mine has done more to improve the economy of Taos County than anything else since 1966.

The operation of the mine does have an effect on air quality. The drilling, blasting, and hauling of the mine waste and ore cause dust. The equipment and power generating plant contribute some smoke to the atmosphere and, finally, the ore drying plant contributes dust to the atmosphere through the drying process. The effect of this air pollution upon the ecology of Red River Canyon or upon the atmosphere is not known, but the visible evidence is slight.

The effect on natural beauty is probably one of the greatest impacts on the mine. The mine dump in Capulin Canyon and the strippings of overburden from the western side of the open pit are visible for at least 30 miles to the west of Questa. The rugged terrain limits the view in other directions from State Route 38 west from the town of Red River where it is possible to look into the open pit for 3 or 4 miles. Surprisingly, the Forest Service has received no complaints concerning the impact on the natural beauty since the mine has been operating. From this, it is only possible to reach two conclusions: either the general public is not as concerned about natural beauty as was originally thought, or it accepts mining operations as a part of the environment and believe its objections would have little or no effect on the operation.

There are no developed recreation sites and only one potential site which will be affected by the exchange proposal. Agua Amarilla, a proposed campground which was inventoried in the National Forest Recreation Survey, is located on a small bench situated north of State Highway 38 and south of the proposed dump area. This bench occupies an alluvial fan at the mouth of Goat Hill Gulch. It comprises approximately 40 usable acres. This small 40-acre bench is virtually the only portion of the selected land which could be usable for anything but watershed or

wildlife habitat. The Red River Recreation Composite Management Plan lists this bench as a proposed campground, but recommends that any development on the site be deferred until the outcome of the land exchange with Molybdenum Corporation of America is determined.

The soils on the selected lands are unique. This land form is a mixture of 25 to 50% rhyolite rock outcroppings and variable amounts of stony texture and hydrothermally altered land. The hydrothermally altered land is unique in that very active geologic erosion is occurring. These soft, extremely acid, yellowish sediments are unstable, and are the results of alterations of rocks by hot springs and gases. The characteristics of these soils greatly limit the use and management of the area. The hydrothermally altered land component has a potential net soil loss of 2.07 inches per year. The inherent characteristics of this formation are such that little can be done to stabilize these areas. The soil can thus be described as having a very low fertility, further restricted by 30 to 90% surface cover in coarse fragments, and an average slope of 90%.

The timber on the selected land is small and shrubby. Volumes are estimated at 4,000 to 8,000 board feet per acre and is located on steep slopes which average 90%. Road and logging costs would preclude harvesting the timber because of the steep, rocky terrain and scattered location and volume. Timber for purposes other than watershed should not be considered in this report.

The present highest and best use of the selected land is for watershed. Its value as such, however, is undetermined, since it could be measured only against the difference in water quality or flood damage that would occur if it did not function properly as a watershed. The figure is nebulous because it is subject to the vagaries of weather and usage of land to which the watershed supplies water or protects from damage. Thus the consideration of value as watershed is philosophical rather than mathematical. No studies have been made concerning the volume of sediment which is annually deposited in the Red River each summer from the hydrothermal formation in the Red River Canyon, but frequent mud flows do occur and cross the State Highway.

Six major hydrothermal formations are located on the selected lands. Mud flows to the depth of 6 to 8 feet have been observed flowing from these formations into the stream. This is natural geologic erosion and has not been effected or caused by man.

The south and west facing slopes in the Red River Canyon are covered with a good stand of browse. The primary browse plants found in these brush fields are mountain mahogany and Gambel oak.

A large number of deer and some elk winter on these south and west facing slopes. Deer numbers have been declining in the entire Questa area for several years. For example, in Red River Canyon in 1967 the deer use in these browse fields was estimated to be 35 deer days per acre. Last winter,

wildlife habitat. The Red River Recreation Composite Management Plan lists this bench as a proposed campground, but recommends that any development on the site be deferred until the outcome of the land exchange with Molybdenum Corporation of America is determined.

The soils on the selected lands are unique. This land form is a mixture of 25 to 50% rhyolite rock outcroppings and variable amounts of stony texture and hydrothermally altered land. The hydrothermally altered land is unique in that very active geologic erosion is occurring. These soft, extremely acid, yellowish sediments are unstable, and are the results of alterations of rocks by hot springs and gases. The characteristics of these soils greatly limit the use and management of the area. The hydrothermally altered land component has a potential net soil loss of 2.07 inches per year. The inherent characteristics of this formation are such that little can be done to stabilize these areas. The soil can thus be described as having a very low fertility, further restricted by 30 to 90% surface cover in coarse fragments, and an average slope of 90%.

The timber on the selected land is small and shrubby. Volumes are estimated at 4,000 to 8,000 board feet per acre and is located on steep slopes which average 90%. Road and logging costs would preclude harvesting the timber because of the steep, rocky terrain and scattered location and volume. Timber for purposes other than watershed should not be considered in this report.

The present highest and best use of the selected land is for watershed. Its value as such, however, is undetermined, since it could be measured only against the difference in water quality or flood damage that would occur if it did not function properly as a watershed. The figure is nebulous because it is subject to the vagaries of weather and usage of land to which the watershed supplies water or protects from damage. Thus the consideration of value as watershed is philosophical rather than mathematical. No studies have been made concerning the volume of sediment which is annually deposited in the Red River each summer from the hydrothermal formation in the Red River Canyon, but frequent mud flows do occur and cross the State Highway.

Six major hydrothermal formations are located on the selected lands. Mud flows to the depth of 6 to 8 feet have been observed flowing from these formations into the stream. This is natural geologic erosion and has not been effected or caused by man.

The south and west facing slopes in the Red River Canyon are covered with a good stand of browse. The primary browse plants found in these brush fields are mountain mahogany and Gambel oak.

A large number of deer and some elk winter on these south and west facing slopes. Deer numbers have been declining in the entire Questa area for several years. For example, in Red River Canyon in 1967 the deer use in these browse fields was estimated to be 35 deer days per acre. Last winter,

this use had declined to 5 deer days per acre. The cause of this decline is not known. Some of it may be attributed to increased hunting pressure; but since the decrease is not limited to the Red River Canyon, it is apparently not the result of the mine and mining activity. An estimated 400 to 500 acres of wildlife winter range will be destroyed by the mine dumps.

III. FAVORABLE ENVIRONMENTAL EFFECTS

The principal local benefit of the mine is to the economy of northern New Mexico. The Company is the largest single employer in northern New Mexico and specifically Taos County. It has contributed more to the economy of this area than all the public works projects and other welfare programs since the mine began operation in 1966.

Obviously, the mine is supplying a needed mineral resource to the Nation.

There are several indirect benefits from the disposal of the overburden material. The material is being dumped over the hydrothermal formations adjacent to the pit, and is controlling the erosion which is occurring from these formations. If the operation for the next 4 to 5 years continues at the present rate all of these hydrothermal formations adjacent to the mine will be controlled and the sediment load in the Red River should be reduced from 30 to 40%. The control of these mud flows will be extremely beneficial. Many of the flows regularly cross State Highway 38 in the Red River Canyon. The cleanup of these mud flows is very expensive, and there should be a saving in State highway maintenence funds and to the taxpayer in the long run. The Company also is constructing berms above the State highway of material which will support vegetation and will be planted and eventually will screen much, if not all, of the operation from the highway. By holding the overburden on sites adjacent to the pit there ~~is~~ no danger to the public from trucks and other conveyances, and dust can be held to a minimum.

IV. ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

Adverse environmental effects are not the result of the exchange proposal, but from the mining activity, itself. The mining activities will still continue on the patented mining claims or on millsites and are not dependent upon approval or disapproval of this land exchange proposal.

Air pollution is occurring and will continue to occur. The natural landscape will be altered and an extensive program of landscape alteration is planned. The alteration will be detrimental to the natural beauty of the Red River Canyon, at least for many years.

A potential campground will be eliminated by this proposal, but the decision had already been made not to develop this campground because of the mining activity. The recreation use in Red River Canyon is seriously deteriorating existing campgrounds, and additional camping areas are needed. However, the narrow canyon with the highway and stream make the

development of any large campgrounds nearly impossible. The decision has already been made to direct this recreation development into other areas which will be sufficiently near Red River to care for those using this popular area.

The effects of the mine dumps on the watershed can only be anticipated. As long as the mine dumps are scarified and check dammed after completion, there will be no problems; but if erosion control measures are not taken on the top of the mine dumps, it would be conceivable for large volumes of water to spill over the edge and cause erosion and eventual sedimentation of the stream. The top of the mine dump as planned in Capulin Canyon will be in excess of 500 acres. This area, if not properly controlled, would produce a large volume of water and could cause considerable damage to the downstream resources. However, the Company has been controlling the erosion on the mine dumps and it has not been a problem to date.

The destruction of several hundred acres of winter range for wildlife is very serious. Winter range is probably the largest single factor limiting wildlife numbers in this area.

V. ALTERNATIVES TO THE PROPOSED ACTION

One of the Company's proposals is to dump the waste into the Red River Canyon from a point just below the mine to the mouth of Columbine Canyon. This plan would require a tunnel for rerouting State Route 38 and a diversion of Red River. This is the least expensive means of disposing of the overburden, but the impact on the environment and ecology of Red River Canyon would be tremendous. The proposal has been vigorously opposed by the Forest Service and ecologist groups. Because of this opposition, the Company has made the other proposals.

A second alternative is to prohibit the dump on National Forest land. Under the mining laws, the mining company has every right to use millsites for waste disposal areas, and economics would force them to follow this route rather than transport the large volume of overburden 8 to 10 miles to a site outside the National Forest. If economically feasible, such a project would disfigure the landscape with tram or road, and dust and would be extremely hazardous to the public.

A third alternative is to dump the waste into the pit area itself. However, the pit limits have not been opened and will not be completely uncovered for 15 to 20 years. After that period of time, it will be possible to use portions of the pit for waste disposal, but at the present time it is very nearly impossible.

VI. RELATIONSHIP BETWEEN SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE OF LONG-TERM PRODUCTIVITY

The Company plans to complete the removal of the overburden from the main ore body in the next 20 or 30 years. Thus, the dumping of this overburden

on the selected lands should be completed in this same period. This time period represents the short-term use by man. The mine dumps, when finished, will represent monuments to man's technical knowledge, but what about the long-term productivity of the land? These dumps are essentially massive mounds of sterile rock. It will take nature untold centuries to build a thin mantle of soil on these dumps and restore the vegetative cover, and only after the soil has been restored can these lands be productive. If the Company is able to acquire the entire dump site, it plans to develop it in an orderly fashion with terraces and enough back fill of fine material on the surface to permit establishment of vegetation. This treatment will permit orderly storage of the overburden and site restoration in a minimum of time.

VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The use of the selected lands as a mine dump is an irreversible and irretrievable use of the land.

The advantage of the land exchange to the United States is acquiring 246.65 acres of land which can be used in the production of Forest resources. If this land is not acquired now, it probably will be subdivided. The offered lands can be administered as public lands, whereas the selected lands will be utilized as a part of the mine, regardless of ownership and unavailable to the public.

VIII. CONSULTATION WITH OTHERS

Comments or suggestions are being solicited from the following organizations and individuals:

1. New Mexico State Game and Fish
2. New Mexico State Highway Department
3. Town of Red River
4. Village of Questa
5. Taos County Commissioners
6. New Mexico Environmental Agency
7. Senator Anderson
8. Senator Montoya
9. Congressman Lujan

IX. RECOMMENDATIONS

We recommend that this Environmental Analysis be approved and that the land exchange be completed.

We further recommend that easement deeds be issued in favor of Kit Carson Electric Cooperative and Mountain Bell Telephone Company for the portion of their lines within the boundaries of the selected land.